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Orsett Psychological Services
PO Box 179
Grays
Essex
RM16 3EW

orsettpsychologicalservices@phonecoop.coop

CONTENTS

WHAT REALLY HAPPENED: HENRI TAJFEL AND INTERGROUP CONFLICT

INTRODUCTION

Henri Tajfel's (1) experiments (2) on intergroup conflict aimed to show how the process of ingroup favouritism and outgroup discrimination occur in groups with no history of group interactions. Rather than using groups with existing histories (eg: male, female), Tajfel created temporary groups arbitrarily by, for example, the toss of a coin. These have been called the "minimal group studies" (3)(4).

He wanted to show that the process of intergroup conflict was an inevitable part of social identity and group behaviour (5).

FIRST SET OF EXPERIMENTS

Based at the University of Bristol, Tajfel used sixty-four local 14-15 year-old boys (6)(7) from a comprehensive school in the suburbs of the city. The boys participated in groups of eight, and they all knew each other well.

The experiment involved two parts - establishing of the groups, and the effects of group membership on behaviour.

Part 1 - Establishing the Groups

The boys were asked to estimate how many dots were flashed on a screen. The boys were then allocated into two groups called "overestimators" or "underestimators", but, in reality, the allocation process was random (8). In another version of the experiment, the groups were called "better" or "worse".

Part 2 - Effects of Group Membership on Behaviour

The real focus of the experiment was the task here. The boys were told that they must allocate rewards (in money) from eighteen sets of ordered numbers. The only information given about the allocation was that some individuals would be part of their own group ("overestimators" or "underestimators"), and others would be the alternative group (9). This was done individually in cubicles with the belief that real money would be given at the end.

Each set of ordered numbers was a matrix containing fourteen boxes (figure 1). There were six matrices that

appeared three times each. The top row of numbers chosen was the reward for their own group, and the bottom row for the other group (10).

So, for example, in figure 1 the participants had three choices. Choices from matrix A gave more points to the ingroup member and less to the outgroup member, while matrices B and C are the opposite.

MATRIX A

18	17	16	15	14	13	12	11
5	6	7	8	9	10	11	12

MATRIX B

1	2	3	4	5	6	7	8
14	13	12	11	10	9	8	7

MATRIX C

-19	-16	-13	-10	-7	-4	-1	0
6	5	4	3	2	1	0	-1

(After Gross 1994)

Figure 1 - Extracts of examples of matrices used in Tajfel's first set of experiments.

Overall, the majority of participants gave more points to their own group (ingroup) than to the other group (outgroup). The results were scored on a scale of 1-14 with lower numbers meaning maximum gain for outgroup members, and high numbers as maximum gain for ingroup members. Fairness would produce an average in the middle, but the average found was over nine (statistically significant).

Tajfel (1970) summarised the situation:

> The boys, who knew each other well, were divided into groups defined by flimsy and unimportant criteria. Their own individual interests were not affected by their choices, since they always assigned points to two other people and no one could know what any other boy's choices were. The amounts of money were trivial.. {but} .. they discriminated in favour of the ingroup.

SECOND SET OF EXPERIMENTS

A new group of forty-eight Bristol schoolboys (tested in three groups of sixteen) (11) were used in the second set of experiments. The same experimental design was used, but with two changes:

i) The groups were, apparently, established through a preference for the paintings of Paul Klee or Wassily Kandinsky as based on slides shown. However, the allocation was random again (12);

ii) The matrices for allocating the rewards were different, and were based on four types (figure 2):

- Fairness - allocation of equal points for both individuals;
- Maximum ingroup profit (MIP) - allocation that gave the best reward to the ingroup;
- Maximum joint profit (MJP) - allocation that gave the best reward for both groups;
- Maximum difference in favour of ingroup member (MD) - allocation that gave greatest reward to own group and least to other group.

MATRIX A

12	13	14	15	16
11	13 (A)	15	17	19 (C)

MATRIX B

19	18	17	16	15
1 (B)	3	5	7	9

Top row = choice for ingroup; bottom row = choice for outgroup

A = fairness choice; B = MIP/MD choices; C = MJP choice

(After Gross 1994)

Figure 2 - Extracts of examples of matrices used in Tajfel's second set of experiments.

As in the first set of experiments, the allocation process involved three possibilities: ingroup member vs outgroup member (most important focus of experiment), and two controls (ingroup member vs ingroup member, and

outgroup member vs outgroup member) (13).

The results showed that the boys were significantly more likely to choose MD and MIP strategies: "In other words, when the subjects had a choice between maximzing the profit for all and maximizing the profit for members of their own group, they acted on behalf of their own group" (Tajfel 1970) (14)(15)(16).

Table 1 summarises the type of choices made.

TOP ROW ALLOCATION	BOTTOM ROW ALLOCATION	STRATEGY USED TO ALLOCATE REWARDS
Ingroup member	Outgroup member	MD/MIP
Ingroup member	Ingroup member	MJP
Ingroup member	Outgroup member	As lower points as possible

Table 1 - Pattern of findings from Tajfel's second set of experiments.

CONCLUSIONS

Tajfel's work on intergroup conflict challenged the view of the time that it only occurs with a strong overt group identity (eg: group uniform) and obvious direct competition between the groups (17). For the boys studied here, it was enough for them to perceive themselves as a member of a particular group, even if the group membership criteria were flimsy (18).

EVALUATIVE FOOTNOTES

1. Henri Tajfel was a Polish Jew who survived as a prisoner of war in World War II by disguising himself as French. He later settled in Britain (Brown 2007). Thus he had a personal interest in the social psychology of intergroup conflict.

His early research (eg: 1957, 1959) was concerned with perception of objects (overestimation of size of high-value coins and underestimation of low-value ones). These ideas were applied to the social perception of groups.

2. Tajfel (1969; 1970); Tajfel et al (1971); further details in Tajfel (1981).

3. The minimal group paradigm (MGP) was originally devised by Rabbie and Horwitz (1969). There are three main aspects to the MGP (Hunter et al 2005):

i) Individuals are anonymously assigned to each group based on arbitrary criteria (eg: toss of a coin). This isolates already-existing group identities;

ii) Individuals do not physically interact with ingroup or outgroup members. This isolates variables related to appearance, like stereotypes, in the forming of group identity;

iii) The task for the individuals does not allow self-interest in the allocation of rewards.

4. Tajfel's work is based on laboratory experiments. These have advantages and disadvantages (table 2).

ADVANTAGES	DISADVANTAGES
- Establish cause and effect relationship between variables - Control of participants and variables - Comparison of participants - Replication possible because of standardised procedures used - Measure behaviour precisely in lab	- Low ecological validity ie: artificial study of behaviour - Narrowness of independent and dependent variables - Measures behaviour for short limited period only - Experimenter effects - Demand characteristics and evaluation apprehension

Table 2 - Main advantages and disadvantages of lab experiments.

5. This is a pessimistic view that conflict and discrimination between groups is the "inexorable logic" of group identity (Wetherell 1996).

6. This research used only boys (of a certain age). This limits the ability to generalise the results because the

sample is not representative.

Furthermore, by not using female participants, it is assuming that women will "predictably behave in the same way as men in intergroup situations" (Foster 1997 p40).

This is part of an inherent male bias in psychology which views male behaviour as the norm (Nicolson 1997). Williams (1994) has argued that male identity is generally more competitive, and this could explain the findings.

7. The participants were recruited through opportunity sampling, which is the random allocation to experimental conditions of those available. It has advantages and disadvantages (table 3).

ADVANTAGES	DISADVANTAGES
- Easy to find participants - Less time consuming than quota sampling to allocate to conditions of experiment	- Not representative of whole population; thus generalisation of results not possible - No control over similarity or difference of participants in each condition

Table 3 - Advantages and disadvantages of opportunity sampling.

8. The participants were deceived about this part of the experiment, but it is seen as an acceptable risk (Brewer 2001).

9. The task produced "demand characteristics" (Orne 1962). These are implicit cues that tell the participants what is expected of them by the experimenter. In this case, it is very hard to allocate the rewards without the implicit assumption that individuals will show ingroup favouritism and outgroup discrimination.

Tajfel and Turner (1979) defended the work against this criticism based on post-experiment interviews (Turner 1975): participants did not "share any common conception of the 'appropriate' or 'obvious' way to behave, that only a tiny minority have some idea of the hypothesis, and that this minority does not always conform to it".

10. The task was very artificial (and potentially confusing). There are advantages and disadvantages to using a task completely different to real-life (table 4).

ADVANTAGES	DISADVANTAGES
- Removes any learning or bias from real-life tasks - All participants begin as equal in terms of experience of task and ability	- Participants may not take task seriously - The task has no real meaning for the participant

Table 4 - Advantages and disadvantages of using an artificial task in the experiment.

11. Testing the participants in smaller groups rather than in one large condition has advantages and disadvantages for the researchers (table 5).

ADVANTAGES	DISADVANTAGES
- Easier to manage smaller groups - Less problems in getting small numbers of participants to come to the lab (eg: school transporting them) - Gives opportunity to change parts of experiment if problems arise	- Participants who have completed the experiment may tell those waiting about it - Need to run experiment a number of times - Changes in middle of experiment can produce confounding variables

Table 5 - Advantages and disadvantages of testing participants in smaller groups.

12. Even when participants were told that they were randomly allocated to their groups, ingroup favouritism continued (Billig and Tajfel 1973). While Locksley et al (1980) tossed the coin in front of participants and gave the groups obviously meaningless names.

13. A control group is an important part of the experiment, but there are times when multiple control groups are used as here (table 6).

ADVANTAGES	DISADVANTAGES
- Baseline or comparison groups to experimental condition - Two controls show even better the changes in the experimental group due to the independent variable	- Some control groups can be dull for participants because there is no manipulation of variables - In repeated measures designed experiments, participants may suffer from order effects in the experimental condition after doing the control conditions

Table 6 - Advantages and disadvantages of control groups in an experiment.

14. This interpretation of the results has been challenged. Brown (1988; quoted in Banyard and Grayson 2000) argued that the bias was small, and the choices were not extremely in favour of the outgroup and against the outgroup. He believed that the boys showed a degree of fairness.

15. The sample used was from a Western country. Wetherell (1982) found clear cultural differences in these experiments. In her version of the experiment with Pacific Island children, they were more likely to choose the MJP strategy even when their group made a loss. In these cultures, generosity is highly valued rather than gaining more as in Western societies.

16. Research has shown that when the allocation process involves negative outcomes (eg: allocating punishments), ingroup favouritism and outgroup discrimination may not occur (Mummendey et al 1992).

17. The dominant view of the time came from the work of Sherif et al (1961) in the "Robbers Cave Experiment".

18. The explanation for this behaviour became formalised as the Social Identity Theory (Tajfel and Turner 1979). With social identification, "who one is as a person is much less important than the uniform you are wearing or the colour of the scarf around your neck" (Brown 1988 p388).

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Kevin Brewer

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DO NON-HUMAN ANIMALS HAVE CULTURE?

INTRODUCTION

Traditionally the existence of culture is seen as distinction between humans and non-humans. The dominance hierarchies of certain monkeys, like vervets, is quite sophisticated, but it is not believed to be the same as human culture.

Whether non-human animals have culture is a controversial question, and the answer depends upon how culture is defined. There are many different definitions, but key ideas emerge from them:

i) The behaviour is acquired through social learning, imitation or tuition from conspecifics;

ii) The behaviour is different in different populations of the same species independent of environment or genetic factors: ie the existence of different traditions;

iii) The behaviour is the accumulation of social modifications over time and generations;

iv) A range of "social pressures" are involved in cultural transmission including exposure, social support, and matched dependent learning (Whiten and Ham 1992);

v) The cultural development of the behaviour is cumulative, known as the "ratchet effect" (Tomasello 1994).

The wider definitions allow the application of the concept of culture to non-human animals. There are narrower definitions which specify teaching (as in humans) as a requirement of cultural transmission (eg Galef 1992). Tomasello (1999) has criticised comparisons of populations for difference as risking spurious conclusions about culture, and ignoring individual learning.

Culture in non-human animals is studied in two general ways:

a) Controlled lab experiments - This preferred method of researchers focuses upon cultural transmission. One animal is taught a new behaviour, and then a group is observed to see if they too show the new behaviour. In other words, does the animal taught the behaviour then teach the others in their group either directly (tuition) or indirectly (imitation)?

The controlled nature of the study reduces the chances of ambiguity in the interpretation of the data (Rendell and Whitehead 2001). But this is not the wild, and there is a risk of measuring artificial facets of the

captive environment (McGrew 1992).

b) Field studies - Larger scale studies (both in size and time) of animals in their natural habitats. "Here culture is deduced from patterns of behaviour variation in time and space, which cannot be explained by environmental or genetic factors" (Rendell and Whitehead 2001).

Though it has the advantage of seeing animals in the wild, it is very difficult to establish the processes of cultural transmission.

Studies of culture in non-human animals has concentrated on three main areas: chimpanzees, other apes, and cetaceans.

CHIMPANZEES

There is evidence of "enculturation" among apes reared by humans, particularly in language teaching studies. For example, "Kansi" (bonobo chimpanzee) was never directly taught "symbol language", but picked it up from the teaching of "Matata" (adopted mother) (Savage-Rumbaugh 1991). Similarly, "Washoe" (chimpanzee) was seen to teach her infant American Sign Language (ASL) (Gardner and Gardner 1980). But these are not typical situations.

Only recently has more detailed evidence of cultural transmission been highlighted among chimpanzees.

Jane Goodall began the detailed observation of chimpanzees in their habitat. This research and that of others as part of seven long-term projects have together produced 151 years of chimpanzee observation (Whiten et al 1999).

From these projects has come observations of differences in the behaviour repertoire of chimpanzees that has been called cultural variations (Whiten et al 1999).

Whiten et al (1999) identified thirty-nine different behaviour patterns between the seven sites in Africa: Bossu (Guinea), Budongo (Uganda), Gombe (Tanzania), Kibale (Uganda), Mahale (2 separate projects) (Tanzania), and Tai Forest (Ivory Coast). Observations from Lope (Gabon) were added later (Whiten et al 2001). Together the projects are known as the Collaborative Chimpanzee Cultures Project (CCCP) (Whiten 2005).

The differences in behaviours between the sites were classed as culture where it appeared that the behaviour had been learnt by chimpanzees at that particular site. Six of the seven sites showed unique behaviour patterns,

and "Tai Forest" chimpanzees showed eight unique behaviours. Table 1 gives some examples of behaviours.

"Each local chimpanzee community has a unique array of specific traditions, representing a 'package' than can be described as its local culture" (Whiten 2005 p53).

BEHAVIOUR	EXAMPLES
Cracking nuts	Hit with wood (hammer) against wood (anvil); or stone hammer on stone anvil
Fishing for insects	Put stick into termite mound and pull out with insects on, wipe stick with hand and place insects in mouth; or put stick directly into mouth
Grooming	Pick off parasite and squash in hand; or squash on skin

Table 1 - Examples of behaviour differences between sites.

Since Whiten et al (1999) other behaviour patterns have been added. For example, McGrew et al (2001) noted differences in "grooming handclasp" between the two projects at Mahale, and between Mahale and Gombe (100 km away), where the behaviour is absent. This is the holding of one hand outstretched while grooming with the other.

ORANGUTANS

Building on the work on geographical differences in behaviour in chimpanzees, van Schaik et al (2003) listed differences among six wild orangutan populations in Borneo (4 sites) and Sumatra (2 sites) in south-east Asia.

The sites had more than four years of intensive observation of 25 individual orangutans and 10 000 contact hours (van Schaik et al 2003). Behaviours were divided into customary, habitual, or rare; and 36 behaviours were studied including feeding techniques, tool use, and social signals. Table 2 gives some examples of behaviour variations between the six sites, and table 3 records the customary and habitual behaviours.

BEHAVIOUR	GEOGRAPHICAL DISTRIBUTION

Leaf wipe: wiping face with fistful of squashed leaves	Customary in Tanjung Puting (Borneo) and absent elsewhere
Scratch stick: using detached stick to scratch body parts	Habitual in Kutai (Borneo), rare in Tanjung Puting, and absent elsewhere
Twig biting: systematically passing ends of twigs used for lining of nest past the mouth	Balimbing (Sumatra); absent elsewhere

Table 2 - Examples of behaviours unique to certain sites.

SITE	NUMBER OF CUSTOMARY AND HABITUAL BEHAVIOURS	NUMBER OF BEHAVIOURS NOT PRESENT AT ANY OR ONE OTHER SITE
BORNEO		
* Gunung Palung	4	1
* Tanjung Puting	7	2
* Kutai	8	3
* Lower Kinabatangan	4	2
SUMATRA		
* Leuser Ketambe	9	2
* Leuser Suaq Balimbing	14	6

Table 3 - Number of customary and habitual behaviours unique to a particular site.

WHALES AND DOLPHINS

Rendell and Whitehead (2001) reviewed the evidence for cultural transmission of patterns of behaviour and vocalizations in whales and dolphins (order Cetacea). These animals show complex social systems and advanced cognitive abilities, which, logically, would be needed for cultural transmission.

Studies of culture in cetaceans tends to be through field studies, and has concentrated most on four species (Rendell and Whitehead 2001):

- Bottlenose dolphins
- Killer whales
- Sperm whales
- Humpback whales

Consequently, it has to be asked whether any findings from these groups are representative of all cetaceans. Other cetaceans not studied in such detail have quite different social systems (eg river dolphins) (Connor et al 1998).

The study of cultural transmission has been the focus of research with cetaceans in three ways:

i) The spread of a new behaviour in a segment of the population. This is within-generation (horizontal) (Cavilla-Sforza and Feldman 1981);

ii) Similarity in a complex form of the behaviour between mother and offspring. This is a parent-offspring (vertical) process (Cavilla-Sforza and Feldman 1981);

iii) Differences in complex behaviour between groups of animals that have not met (group-specific behaviour).

1. New behaviour in a segment of the population

An example of this behaviour is the presence of "local dialects" in male humpback whale song (Payne and Guinea 1983). Males sing during the winter breeding season, and their songs begin as virtually identical in different areas (eg near Hawaii and Mexico, 450 km apart). But the songs develop during the breeding season into "local dialects" copied by all males in that area.

Another example with humpback whales was the observation of a particular feeding technique in one population. Weinrich et al (1992) first observed a technique called "lobtail feeding" by an individual in a group of whales in the southern Gulf of Maine (North America) in 1981, and by 1989, the technique had been adopted by half the group.

The technique involves slamming the tail onto the water as the whale jumps out of the water, and is aimed at scaring the prey.

The increase in this behaviour was observed each year between 1981 and 1989 by researchers who recognised individual whales from photo-identification. Some of the increase was due to imitation by offspring, and some down to horizontal imitation by adults. The latter case ruled out any genetic component of mother to offspring.

2. Parent-offspring transmission

Smolker et al (1997) reported the example of "sponging" in a small group of bottlenose dolphins in Shark Bay, Australia. This involves carrying sponges on their rostra for reasons not known. Of sixty individuals observed over six years, five were observed to do the behaviour regularly. A calf of one of the regulars was seen to sponge. The fact that all calves did not do the behaviour rules out genetic transmission.

Guinet and Bouvier (1995) described killer whale mothers using intentional stranding on beaches to capture pinnipeds off Argentina. Young whales are taught this risky behaviour by mothers pushing their young up the beach and back down.

3. Group-specific behaviour

Vocal "dialects" can be used as evidence here. Ford (1991) reported "acoustic clans" among killer whales near Vancouver Island (North America). Despite a mixture of pods, Ford distinguished four "clans" which each shared up to ten calls unique to their group. Mating occurs between pods, so a genetic/evolutionary basis to the call differences seems unlikely.

Difference between groups of the same species in different areas can again be seen in killer whales. For example, Simila and Ugarte (1993) described a co-operative hunting technique called "carousel feeding" which seemed unique to the killer whales observed off Norway.

Is It Culture?

Rendell and Whitehead (2001) asked whether these examples (and others in their article) "legitimately allow us to attribute culture to cetaceans"? They concluded in the affirmative for a number of reasons:

a) Sophisticated social learning is part of human culture, and cetaceans show such learning. Thus they must have culture.

b) Acquiring behaviour by social learning is a continuum from only one behaviour to most at the other end. Killer whales, for example, show more than one behaviour as socially learned. How many behaviours have to be socially learned to call it culture is an arbitrary line.

c) Using human cultural transmission as the benchmark and only one able to produce culture is

limiting. For example, to say that walking on two legs is the only form of "true" locomotion ignores that other animals move effectively in their own ways.

d) To say that culture only exists if imitation and teaching are proven experimentally is again limiting. Furthermore, "the necessary experiments will likely never be performed given the expense and difficulty of keeping, let alone raising, most cetaceans in conditions which are both sufficiently controlled for valid experiments and sufficiently naturalistic so that the animals may show realistic social behaviour" (Rendell and Whitehead 2001).

e) There is a strong base of examples (table 4) from detailed field studies showing that behaviour that cannot be genetic or due to environmental changes must be cultural.

SPECIES	BEHAVIOURS
Humpback whales	Song variations; lobtail feeding; migration (lone calf repeats mother's migration routes)
Bottlenose dolphins	Sponging; use of human provisioning (eg following fishing boats); human-dolphin fishing co-operation
Killer whale	Intentional stranding; dialects; pod-specific foraging; pod-specific migration patterns; community-specific greeting ceremonies
Sperm whale	Group-specific movement patterns and communal defence methods

(After Rendell and Whitehead 2001)

Table 4 - Examples of cultural behaviours in four well-studied cetacean species.

f) Evolutionary advantages for "conformist transmission" (tendency to imitate those in group) (Boyd and Richerson 1985) in animals in small groups, like pods.

g) Length of life, late age of sexual maturity, and post-reproductive years in lifespan allow the opportunity

for social learning. Furthermore, the existence of older adults post-reproduction gives models for behaviour to juveniles, while the older adults are not competing for mates.

Whitehead and Mann (1999) proposed similarities between humans and killer whales in this idea: both have a lifespan of approximately seventy years, of which about one-third is post-reproduction.

Overall, Rendell and Whitehead (2001) felt that there is strong evidence for cultural transmission in whales and dolphins, and, in particular, killer whales (because of the matrilineal line: ie mother-offspring).

GENERAL CONCLUSIONS

van Schaik et al (2003) defined four elements to culture: labels (eg: local food preferences), signals (eg: song dialects), skills (eg: tool use variations), and symbols ("signal variants that become membership badges of the social unit"). Chimpanzees and orangutans show the first three elements, but only humans have all four.

Whether non-human animals have culture or not will remain a disputed question for many. Allsopp and Brewer (2002), talking about modelling of human cognition by computers, felt that culture is more complex than just intergenerational transmission of behaviours. It includes values, beliefs, customs, rules and regulations as well. Furthermore, language has to play a role too.

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